WEST

Generate Collection | Print

Search Results - Record(s) 1 through 11 of 11 returned.

☐ 1. Document ID: US 20020177646 A1

L9: Entry 1 of 11 File: PGPB Nov 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020177646
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020177646 A1

TITLE: Corrosion-resistant coating composition

PUBLICATION-DATE: November 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Field, Rex J.	Worms		DE	

US-CL-CURRENT: 524/430; 524/492

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 20020137872 A1

L9: Entry 2 of 11 File: PGPB Sep 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020137872
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020137872 A1

TITLE: Coating compositions providing improved mar and scratch resistance and methods of using the same

PUBLICATION-DATE: September 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Schneider, John R.	Glenshaw	PA	US	
Ragan, Deirdre D.	Pittsburgh	PA	US	
Rechenberg, Karen S.	Gibsonia	PA	US	
Chasser, Anthony M.	Allison Park	PA	US	
Barkac, Karen A.	North Huntingdon	PA	US	

US-CL-CURRENT: 528/44; 528/272

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

For example, a "cold cup" (such as those in which cold soft drinks are dispensed at fast food restaurants) is made by cutting an appropriate blank from a sheet, rolling the blank into the shape of a cup, and adhering the ends of the rolled blank using conventional water-based glue. A disc is placed at the bottom of the cup, and the bottom of the rolled wall portion is crimped in order to hold the bottom of the cup in place. The rim of the cup is curled to strengthen the rim and create a smoother drinking surface. Sheets having a thickness of 0.3 mm can be used to make the cup.

A "clam shell" container (such as those presently used in the fast food industry to package hamburgers) is made by cutting an appropriate blank from a sheet, score cutting the blank to form the desired fold lines, folding the blank into the shape of a clam shell container, and adhering or interlocking the ends of the folded blank to preserve the integrity of the container. Sheets having a thickness of 0.4 mm can be used to make the clam shell container.

A french fry container (such as those used to serve cooked french fries in the fast food industry) is made by cutting an appropriate blank from a sheet, score cutting the blank to form the desired fold lines, folding the blank into the shape of a french fry container, and adhering the ends of the folded blank using an adhesive to preserve the integrity of the container. Sheets having a thickness of 0.4 mm can be used to make the french fry container.

A frozen food box (such as those used by supermarkets to package frozen foods) is made by cutting an appropriate blank from a sheet, score cutting the blank to form the desired fold lines, folding the blank into the shape of a frozen food box, and adhering the ends of the folded blank using an adhesive to preserve the integrity of the box. Sheets having a thickness of 0.5 mm can be used to make the frozen food boxes.

A cold cereal box is made by cutting an appropriate blank from a 0.3 mm thick sheet, score cutting the blank to form the desired fold lines, folding the blank into the shape of a cold cereal box, and adhering the ends of the folded blank using an adhesive to preserve the integrity of the cereal box.

A drinking straw is made by rolling a piece of a 0.25 mm sheet into the form of a straw and adhering the ends together. In making the straw, as in making each of the containers set forth above, it is advantageous to control the moisture content of the sheet in order to maintain the highest level of flexibility of the sheet. The higher level of flexibility minimizes splitting and tearing of the sheet.

The containers so made are set forth as follows, including the thickness of the sheet used to make each container:

Example	Container	Sheet Thickness
47	cold cup	0.3 mm
48	clam shell	0.4 mm
49	french fry container	0.4 mm
50	frozen food box	0.5 mm
51	cold cereal box	0.3 mm
52	drinking straw	0.25 mm

Example 53

Cold cups made according to Example 47 are passed through a commercial wax coating machine, whereby a uniform layer of wax is applied to the surface. The layer of wax completely seals the surface of the cup to moisture and renders it watertight.

Example 54

Cold cups made according to Example 47 are coated with an acrylic coating using a fine spraying nozzle. Similar to the wax in Example 53, the layer of acrylic coating completely seals the surface of the cup to moisture and renders it watertight. The acrylic coating has the added advantage that it is not as visible as the wax coating. Because a thinner acrylic coating is possible, the cup looks almost as if it is uncoated. The glossiness of the cup can be controlled by using different types of acrylic coatings.

Examples 55 and 56

Clam shell containers made according to Example 48 are alternatively coated with the same coating materials used to coat the cold cups in Examples 53 and 54. The results are substantially identical to those achieved with the coated cups.

Example	Coating Material
55	wax
56	acrylic

Examples 57

Sheets of varying thickness between 0.25 mm and 0.5 mm are formed according to the processes of Examples 1–46. Dry sheets of each thickness are cut into circular shapes and formed into disposable plates using a commercial mechanical press fitted with a progressive die used to make such plates out of paper stock. The formed plates are substantially similar in shape, strength, and appearance compared to conventional paper plates. However, the plates made from starch-bound sheets are more rigid than conventional paper plates and, hence, possess more structural integrity when food is placed on or within the plates.

Example 58

Starch-bound sheets using any of the mix designs set forth above are used to manufacture printed reading materials, such as magazines or brochures. Such magazines and brochures contain both thinner, more flexible sheets, as well as thicker, less flexible sheets. The thinner, more flexible sheets have a thickness of about 0.025–0.05 mm, while the thicker, less flexible sheets have a thickness of about 0.1–0.2 mm.

Example 59

Using any of the compositions in the foregoing examples, corrugated sheets containing a fluted inner structure sandwiched between two flat sheets are formed. The flat outer sheets are formed by rolling the material into a flat sheet of the appropriate thickness. The corrugated, or fluted inner sheet (which is similar to the fluted or corrugated inner sheet of an ordinary cardboard box) is formed by passing either a hardened or remoistened flat starch-bound sheet of the appropriate thickness through a pair of rollers with intermeshing corrugated surfaces or teeth.

Glue is applied to the surfaces of the corrugated sheet, which is then sandwiched between two flat sheets and allowed to harden. The corrugated/sandwich sheet construction has superior properties of strength, toughness, and rigidity compared to conventional corrugated cardboard sheets.

☐ 3. Document ID: US 20010003358 A1

L9: Entry 3 of 11 File: PGPB Jun 14, 2001

PGPUB-DOCUMENT-NUMBER: 20010003358
PGPUB-FILING-TYPE: new-utility
DOCUMENT-IDENTIFIER: US 20010003358 A1

TITLE: Scaly silica particles and hardenable composition containing them

PUBLICATION-DATE: June 14, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Terase, Kunihiko	Fukuoka		JP	
Inoue, Masaki	Fukuoka		JP	
Fujii, Atsunari	Fukuoka		JP	
Sasaki, Takayoshi	Fukuoka		JP	
Minohara, Shikou	Fukuoka		JP	
Ohba, Yosimi	Fukuoka		JP	

US-CL-CURRENT: 252/62; 106/481, 264/117, 523/216, 523/218

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

---

☐ 4. Document ID: US 6534176 B2

L9: Entry 4 of 11 File: USPT Mar 18, 2003

US-PAT-NO: 6534176
DOCUMENT-IDENTIFIER: US 6534176 B2

TITLE: Scaly silica particles and hardenable composition containing them

DATE-ISSUED: March 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Terase; Kunihiko	Fukuoka			JP
Inoue; Masaki	Fukuoka			JP
Fujii; Atsunari	Fukuoka			JP
Sasaki; Takayoshi	Fukuoka			JP
Minohara; Shikou	Fukuoka			JP
Ohba; Yoshimi	Fukuoka			JP

US-CL-CURRENT: 428/403; 106/492, 428/404, 428/406, 428/407, 428/436, 428/444, 428/446, 428/454, 428/482, 502/239, 502/243

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

---

☐ 5. Document ID: US 6268300 B1

L9: Entry 5 of 11 File: USPT Jul 31, 2001

Examples 60–68

Any of the mix designs set forth in Examples 1–59 may be altered by replacing some or all of the Methocel with one or more other cellulosic ethers as follows:

Example	Cellulosic Ether
60	hydroxymethylcellulose
61	methylhydroxyethylcellulose
62	hydroxymethylethylcellulose
63	carboxymethylcellulose
64	other methylcelluloses
65	ethylcellulose
66	hydroxyethylcellulose
67	hydroxyethylpropylcellulose
63	hydroxypropylcellulose

Examples 69–79

Any of the mix designs set forth in Examples 1–59 may be altered by replacing some or all of the Methocel with one or more cellulose esters as follows:

Example	Cellulose Ester
69	cellulose formate
70	cellulose acetate
71	cellulose diacetate
72	cellulose propionate
73	cellulose dipropionate
74	cellulose butyrate
75	cellulose dibutyrate
76	cellulose valerate
77	esters of fatty acids and cellulose
78	cellulose sulfonate
79	cellulose benzoate

Examples 80–82

Any of the mix designs set forth in Examples 1–59 may be altered by replacing some or all of the Methocel with one or more starch derivatives as follows:

Example	Starch Derivative
80	esterified starch
81	etherified starch
82	cross-linked starch

Examples 83–92

Any of the mix designs set forth in Examples 1–59 may be altered by replacing some or all of the Methocel with one or more polysaccharide gums as follows:

Example	Starch Derivative
83	guar gum
84	alginic acid
85	phycocolloids
86	agar
87	gum arabic

-continued

Example	Starch Derivative
88	locust bean gum
89	gum karaya
90	xanthan gum
91	okra derivatives
92	tragacanth gum

Examples 93–96

Any of the mix designs set forth in Examples 1–59 may be altered by replacing some or all of the Methocel with one or more protein-derived materials as follows:

Example	Starch Derivative
93	Zein ®
94	collagen
95	casein
96	grafted proteins

Examples 97–108

Any of the mix designs set forth in Examples 1–59 may be altered by replacing some or all of the Methocel with one or more synthetic organic polymers as follows:

Example	Starch Derivative
97	polyacrylic acid
98	polyvinyl alcohol
99	polyvinyl pyrrolidone
100	polyvinyl methacrylate
101	polymethacrylimide
102	polyethylene glycol
103	polypropylene glycol n-propyl ether
104	polyvinyl acetate
105	ethylene oxide polymers
106	polylactic acid
107	water-dispersible latexes
108	polyacrylimide

VI. SUMMARY

From the foregoing, it will be appreciated that the present invention provides compositions and methods for manufacturing low cost, environmentally friendly sheets and films which have properties similar to paper, paperboard, polystyrene, plastic, or metal sheets.

In addition, the present invention provides compositions and methods for manufacturing sheets and films that can be formed into a variety of containers or other articles using existing manufacturing equipment and techniques presently used to form articles from paper, paperboard, polystyrene, plastic, or metal sheets.

Further, the present invention provides compositions and methods for manufacturing environmentally friendly sheets and films that can be formed from moldable compositions which contain only a fraction of the water contained in typically slurries used to make conventional paper and which do not require extensive dewatering during the sheet forming process.

In addition, the present invention provides sheets and films, as well as containers and other articles made

US-PAT-NO: 6268300
DOCUMENT-IDENTIFIER: US 6268300 B1

TITLE: Textile coating compositions

DATE-ISSUED: July 31, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hernandez; Paul Caesar	Greensboro	NC		
Kosal; Diane Marie	Midland	MI		
Roberts; Matthew Quintin	Hemlock	MI		

US-CL-CURRENT: 442/168; 280/728.1, 442/169

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 6. Document ID: US 5614250 A

L9: Entry 6 of 11 File: USPT Mar 25, 1997

US-PAT-NO: 5614250
DOCUMENT-IDENTIFIER: US 5614250 A

TITLE: Coated filler and use thereof

DATE-ISSUED: March 25, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Diener; Carl E.	Binghamton	NY		
Mehta; Ashit A.	Vestal	NY		
Paonessa; Ralph S.	Endwell	NY		
Skarvinko; Eugene R.	Binghamton	NY		
Wang; David W.	Vestal	NY		

US-CL-CURRENT: 427/96; 427/379, 427/387, 427/388.4

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw. Desc | Image

☐ 7. Document ID: US 5607744 A

L9: Entry 7 of 11 File: USPT Mar 4, 1997

US-PAT-NO: 5607744
DOCUMENT-IDENTIFIER: US 5607744 A

TITLE: Coated filler and use thereof

DATE-ISSUED: March 4, 1997

INVENTOR-INFORMATION:

therefrom, that are readily biodegradable and/or decomposable into substances naturally found in the earth.

Moreover, the present invention provides compositions and methods which allow for the manufacture of sheets, films, containers and other articles therefrom at a cost that is comparable to or even lower than the cost of existing methods for manufacturing paper, plastics, or metal products.

Specifically, the present invention reduces the energy requirements and initial capital investment cost for making products having the desirable characteristics found in paper, plastics, or metals.

The present invention further provides compositions and methods which allow for the inclusion of relatively high amounts of starch within sheets and films while overcoming the problems associated its adhesion of starch, particularly gelatinized starch, to the molding or sheet forming apparatus.

Further, the present invention provides compositions and methods which allow for the optional inclusion of significant quantities of natural inorganic mineral fillers within the aforementioned sheets and films.

Finally, the present invention provides compositions and methods for manufacturing inorganically filled sheets and films that have greater flexibility, tensile strength, toughness, moldability, and mass-producibility compared to primary materials having a high content of inorganic filler.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects as illustrative only and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed and desired to be secured by United States Letters Patent is:

1. A method for manufacturing a starch-bound sheet comprising the steps of:

(a) providing a starch-based mixture including water, initially ungelatinized starch granules, and an auxiliary water-dispersible organic polymer that is capable of reducing adhesion between the starch-based mixture and heated forming rollers upon gelatinization of the starch granules;

(b) forming the starch-based mixture into an initial green sheet by passing the mixture between at least one set of heated forming rollers having a temperature such that a portion of the auiliy water-dispersible organic polymer forms a layer of reduced adhesion on the outer surfaces of the initial green sheet in order to prevent substantial adhesion of the starch-based mixture to the forming rollers upon gelatinization of the starch granules;

(c) heating the initial green sheet to cause at least a portion of the starch granules to become gelatinized in order to form an intermediate green sheet; and

(d) removing at least a portion of the water from the intermediate green sheet by evaporation so as to form a starch-bound sheet having a binding matrix that includes a mixture of substantially dried starch and auxiliary water-dispersible organic polymer.

2. A method as defined in claim 1, wherein steps (b) through (d) are performed by successive sets of rollers having increasing temperatures from one set of rollers to a next set of rollers.

3. A method as defined in claim 1, wherein steps (b) through (d) are performed by successive sets of rollers having substantially the same temperature from one set of rollers to a next set of rollers.

4. A method as defined in claim 1, wherein steps (b) and (c) are performed by a single set of rollers.

5. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer has a thermal precipitation temperature and wherein the forming rollers of step (b) have a temperature that is at least as high as the thermal precipitation temperature.

6. A method as defined in claim 5, wherein the starch granules have a gelation temperature and wherein the forming rollers utilized in step (b) have a temperature that is lower than the gelation temperature of the starch granules.

7. A method as defined in claim 5, wherein the starch granules have a gelation temperature and wherein the forming rollers of step (b) have a temperature such that at least a portion of the starch granules within the moldable mixture become at least partially gelatinized..

8. A method as defined in claim 1, wherein the starch granules have a concentration in a range from about 5% to about 90% by weight of total solids in the starch-based mixture.

9. A method as defined in claim 1, wherein the starch granules have a concentration in a range from about 15% to about 80% by weight oftotal solids in the starch-based mixture.

10. A method as defined in claim 1, wherein the starch granules have a concentration in a range from about 30% to about 70% by weight of total solids in the starch-based mixture.

11. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer has a concentration in a range from about 0.1% to about 50% by weight of total solids in the starch-based mixture.

12. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer has a concentration in a range from about 0.5% to about 30% by weight of total solids in the starch-based mixture.

13. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer has a concentration in a range from about 1% to about 10% by weight of total solids in the starch-based mixture.

14. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer comprises a cellulose-based material.

15. A method as defined in claim 14, wherein the cellulose-based material comprises a cellulosic ether.

16. A method as defined in claim 15, wherein the cellulosic ether is selected from the group consisting of methylhydroxyethylcellulose, hydroxymethylethylcellulose, carboxymethylcellulose, methylcellulose, ethylcellulose, hydroxyethylcellulose, hydroxyethylpropylcellulose, hydroxypropylcellulose, and mixtures or derivatives thereof.

17. A method as defined in claim 14, wherein the cellulose-based material comprises a cellulose ester.

18. A method as defined in claim 17, wherein the cellulose ester is selected from the group consisting of cellulose formate, cellulose acetate, cellulose diacetate, cellulose propionate, cellulose dipropionate, cellulose butyrate, cellulose dibutyrate, cellulose valerate, esters of fatty acids and cellulose, cellulose sulfonate, cellulose benzoate, and mixtures or derivatives thereof.

19. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer comprises a polysaccharide material.

NAME	CITY	STATE	ZIP CODE	COUNTRY
Diener; Carl E.	Binghamton	NY		
Mehta; Ashit A.	Vestal	NY		
Paonessa; Ralph S.	Endwell	NY		
Skarvinko; Eugene R.	Binghamton	NY		
Wang; David W.	Vestal	NY		

US-CL-CURRENT: 428/131; 361/748, 361/750, 428/209, 428/323, 428/325, 428/331, 428/336, 428/337, 428/421, 428/422, 428/901

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 8. Document ID: US 5605750 A

L9: Entry 8 of 11 File: USPT Feb 25, 1997

US-PAT-NO: 5605750
DOCUMENT-IDENTIFIER: US 5605750 A

TITLE: Microporous ink-jet recording elements

DATE-ISSUED: February 25, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Romano; Charles E.	Rochester	NY		
Bugner; Douglas E.	Rochester	NY		
Ferrar; Wayne T.	Fairport	NY		

US-CL-CURRENT: 428/304.4; 347/105, 428/195, 428/331, 428/500, 428/532

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 9. Document ID: US 5571312 A

L9: Entry 9 of 11 File: USPT Nov 5, 1996

US-PAT-NO: 5571312
DOCUMENT-IDENTIFIER: US 5571312 A

TITLE: Environmentally safe epoxy adhesive-copper hull coating and method

DATE-ISSUED: November 5, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Andoe; Graham C.	Dunwoody	GA		

US-CL-CURRENT: 106/18.32; 106/18.33, 106/18.35, 424/638, 424/78.09, 504/150, 504/158, 514/372, 514/643, 523/122, 523/177 , 524/434

20. A method as defined in claim 19, wherein the polysaccharide material is selected from the group consisting of alginic acid, alginates, phycocolloids, agar, gum arabic, acacia gum, guar gum, carrageenan gum, furcellaran gum, locust bean gum, ghatti gum, psyllium gum, gum karaya, xanthan gum, quince gum, tamarind gum, okra derivatives, gum tragacanth, and mixtures or derivatives thereof.

21. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer comprises a protein-based material.

22. A method as defined in claim 21, wherein the protein-based material is selected from the group consisting of prolamines, collagen, casein, grafted proteins, and mixtures or derivatives thereof.

23. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer comprises a synthetic organic polymer.

24. A method as defined in claim 23, wherein the synthetic organic polymer is selected from the group consisting of polyvinyl acrylic acids, polyvinyl acrylic acid salts, polyvinylalcohol, polyvinylpyrrolidone, polyacrylamide, polyacrylic acids, polyacrylic acid salts, ethylene oxide polymers, polylactic acid, water-dispersible latexes, polyalkoxyalkyl-methacrylates, polyvinylmethyl ether, polyvinylmethylether:maleic anhydride, polyether polyols, and mixtures and derivatives thereof.

25. A method as defined in claim 23, wherein the synthetic organic polymer is selected from the group consisting of poly(ethylene oxide)akylphenyl ethers, polyethylene oxidelauryl, cetyl ethers, oleyl ethers, polyethylene oxide laurate, poly (ethylene oxide) oleate, sorbitan oleate, ethylene oxide/propylene oxide block copolymers, organic phosphate esters, and mixtures and derivatives thereof.

26. A method as defined in claim 23, wherein the synthetic organic polymer is selected from the group consisting of polydiethylene glycol methyl ether, polypropylene glycol N-propyl ether, polydipropylene glycol methyl ether, polypropylene glycol methyl ether, polytripropylene glycol methyl ether, polydiethylene glycol N-butyl ether, polyethylene glycol N-butyl ether, polydipropylene glycol N-propylether, polyglycoldiether, and mixtures or derivatives thereof.

27. A method as defined in claim 1, wherein the auxiliary water-dispersible organic polymer comprises a starch derivative.

28. A method as defined in claim 27, wherein the starch derivative comprises a copolymer of starch and a synthetic polymer.

29. A method as defined in claim 1, wherein the starch-based mixture further includes an inorganic filler in an amount up to about 90% by weight of total solids in the starch-based mixture.

30. A method as defined in claim 29, wherein the inorganic filler has a concentration in a range from about 10% to about 80% by weight of total solids in the starch-based mixture.

31. A method as defined in claim 29, wherein the inorganic filler has a concentration in a range from about 20% to about 70% by weight of total solids in the starch-based mixture.

32. A method as defined in claim 29, wherein the inorganic filler has a concentration in a range from about 30% to about 60% by weight of total solids in the starch-based mixture.

33. A method as defined in claim 1, wherein the starch-based mixture further includes fibers in an amount up to about 70% by weight of total solids in the starch-based mixture.

34. A method as defined in claim 33, wherein the fibers have a concentration in a range from about 1% to about 50% by weight of total solids in the starch-based mixture.

35. A method as defined in claim 33, wherein the fibers have a concentration in a range from about 3% to about 30% by weight of total solids in the starch-based mixture.

36. A method as defined in claim 33, wherein the fibers have a concentration in a range from about 5% to about 20% by weight of total solids in the starch-based mixture.

37. A method as defined in claim 1, wherein the fibers have an aspect ratio of at least about 10:1.

38. A method as defined in claim 1, wherein the fibers have an aspect ratio of at least about 100:1.

39. A method as defined in claim 1, wherein the starch-based mixture has yield stress greater than about 100 Pa.

40. A method as defined in claim 1, wherein the starch-based mixture has yield stress greater than about 10 kPa.

41. A method as defined in claim 1, wherein the starch granules have a gelation temperature and the auxiliary water-dispersible organic polymer has a thermal precipitation temperature, wherein the gelation temperature of the starch granules is greater than the thermal precipitation temperature of the auxiliary water-dispersible organic polymer.

42. A method as defined in claim 1, wherein the water has a concentration in a range from about 5% to about 80% by weight of the starch-based mixture.

43. A method as defined in claim 1, wherein the water has a concentration in a range from about 10% to about 70% by weight of the starch-based mixture.

44. A method as defined in claim 1, wherein the water has a concentration in a range from about 20% to about 50% by weight of the starch-based mixture.

45. A method as defined in claim 1, wherein the starch-based mixture further includes a plasticizer.

46. A sheet as defined in claim 45, wherein the plasticizer is selected from the group consisting of polyethylene glycol, polypropylene glycol, glycerin, polyglycerine, sorbitol, mannitol, erythritol, xylitol, and mixtures thereof.

47. A method as defined in claim 1, further including the process of treating the substantially hardened sheet with a plasticizer.

48. A method as defmed in claim 47, wherein the plasticizer is selected from the group consisting of polyethylene glycol, polypropylene glycol, glycerin, polyglycerine, sorbitol, mannitol, erythritol, xylitol, water, and mixtures thereof.

49. A method as defined in claim 1, further including the step of applying a coating to the substantially hardened sheet.

50. A method as defined in claim 1, further including the step of laminating at least one additional sheet to the substantially hardened sheet.

51. A method as defined in claim 50, wherein the at least one additional sheet is selected from the group consisting of starch-bound sheets, organic polymer sheets, metal foil sheets, ionomer sheets, elastomeric sheets, plastic sheets, fibrous sheets, mats, paper sheets, cellophane sheets, nylon sheets, wax sheets, hydraulically settable sheets, highly inorganically filled sheets, metallized film sheets, and combinations of the foregoing.

52. A method as defined in claim 50, wherein the at least one additional sheet is laminated to the substantially hardened sheet by at least one process selected from the group consisting of wet-bond laminating, dry-bond laminating, thermal laminating, and pressure laminating.

53. A method as defined in claim 1, further including the step of fashioning the substantially hardened sheet into a desired article.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 10. Document ID: US 5055342 A

L9: Entry 10 of 11 File: USPT Oct 8, 1991

US-PAT-NO: 5055342
DOCUMENT-IDENTIFIER: US 5055342 A

TITLE: Fluorinated polymeric composition, fabrication thereof and use thereof

DATE-ISSUED: October 8, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Markovich; Voya	Endwell	NY		
Mehta; Ashit	Vestal	NY		
Park; Jae M.	Somers	NY		
Skarvinko; Eugene	Binghamton	NY		
Wang; David W.	Vestal	NY		

US-CL-CURRENT: 428/137; 361/748, 361/751, 427/96, 428/209, 428/323, 428/421, 428/422, 428/901, 525/235, 525/935, 525/936

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 11. Document ID: US 3915709 A

L9: Entry 11 of 11 File: USPT Oct 28, 1975

US-PAT-NO: 3915709
DOCUMENT-IDENTIFIER: US 3915709 A

TITLE: Backwetting coating for diazo microfilm

DATE-ISSUED: October 28, 1975

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Welch; Walter J.	Binghamton	NY		

US-CL-CURRENT: 430/155; 430/141, 430/17

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

Generate Collection | Print

54. A method as defined in claim 53, wherein the article comprises a container.

55. A method as defined in claim 1, further including the step of winding the substantially hardened sheet onto a spool.

56. A method as defined in claim 1, further including the step of cutting the substantially hardened sheet into smaller sheet segments.

57. A method as defined in claim 1, further including the step of heating the substantially hardened sheet in order to thermoform it into a desired shape.

58. A method as defined in claim 1, further including the step of remoistening the substantially hardened sheet.

59. A method as defined in claim 1, wherein the starch-based mixture further includes a cross-linking admixture.

60. A method as defined in claim 1, further including the process of incorporating interstitial voids throughout the binding matrix of the substantially hardened sheet.

61. A method as defined in claim 1, wherein step (b) further includes extruding the starch-based mixture through a die prior to passing the mixture between the heated forming rollers.

62. A method as defined in claim 1, wherein the initially ungelatinized starch granules comprise two or more different starches having varying gelation temperatures.

63. A method as defined in claim 1, further including the process of compacting the substantially hardened sheet by passing the sheet between at least one pair of compaction rollers.

64. A method as defined in claim 1, further including the step of passing the substantially hardened sheet between at least one pair of calendering rollers.

65. A method as defined in claim 1, wherein steps (b) through (d) occur substantially simultaneously.

66. A method for manufacturing a starch-bound sheet comprising the steps of:

(a) mixing together water, initially ungelatinized starch granules having a gelation temperature, and an auxiliary water-dipsersible organic polymer having a thermal precipitation temperature to form a starch-based mixture having a yield stress greater than about 200 Pa;

(b) forming the starch-based mixture into an initial green sheet by passing the mixture between at least one set of heated forming rollers having a temperature at or above the thermal precipitation temperature of the auxiliary water-dipsersible organic polymer such that a portion of the auxiliary water-dipsersible organic polymer forms a layer of reduced adhesion on the outer surfaces of the initial green sheet in order to prevent substantial adhesion of the starch-based mixture to the forming rollers upon gelatinization of the starch granules;

(c) passing the initial green sheet between at least one set of rollers having a temperature greater than the gelation temperature of the starch granules such that at least a portion of the starch granules become substantially gelatinized in order to form an intermediate green sheet; and

(d) contacting the intermediate green sheet with a heated drying roller in order to remove a substantial portion of the water from the intermediate green sheet by evaporation so as to form a sheet having a binding matrix including substantially dried starch and auxiliary water-dispersible organic polymer.

67. A method as defined in claim 66, wherein steps (b) and (c) occur substantially simultaneously.

68. A method for manufacturing a starch-bound sheet comprising the steps of:

(a) mixing together water, substantially ungelatinized starch granules having a gelation temperature, an auxiliary water-dispersible organic polymer having a thermal precipitation temperature, fibers, and an inorganic filler to form a starch-based mixture having a yield stress greater than about 200 Pa and an inorganic filler concentration greater than about 10% by weight of total solids in the mixture;

(b) forming the starch-based mixture into an initial green sheet by passing the mixture between at least one set of heated forming rollers having a temperature at or above the thermal precipitation temperature of the auxiliary water-dipsersible organic polymer such that a portion of the auxiliary water-dipsersible organic polymer thermally precipitates on the outer surfaces of the initial green sheet in order to prevent substantial adhesion of the starch-based mixture to the forming rollers upon gelatinization of the starch granules;

(c) passing the initial green sheet between at least one set of rollers having a temperature greater than the gelation temperature of the starch granules such that at least a portion of the starch granules become substantially gelatinized in order to form an intermediate green sheet; and

(d) contacting the intermediate green sheet with a heated drying roller in order to remove a substantial portion of the water from the intermediate green sheet by evaporation so as to form a substantially hardened sheet having a binding matrix including substantially dried starch and auxiliary water-dispersible organic polymer.

69. A method as defined in claim 68, wherein steps (b) and (c) occur substantially simultaneously.

70. A method for manufacturing a starch-bound sheet comprising the steps of:

(a) mixing together water, initially ungelatinized starch granules, an auxiliary water-dipsersible organic polymer, a fibrous material, and an inorganic aggregate filler to form a starch-based mixture; and

(b) forming the starch-based mixture into the starch-bound sheet by passing the mixture between at least one set of heated forming rollers having a temperature such that a portion of the an auxiliary water-dipsersible organic polymer forms a layer of reduced adhesion on the outer surfaces of the sheet upon gelatinization of the starch granules, in order to substantially gelatinize at least a portion of the starch granules, and in order remove a substantial portion of the water from the sheet by evaporation so as to form the starch-bound sheet having a binding matrix including substantially dried starch and auxiliary water-dipsersible organic polymer.

71. A method as defined in claim 70, wherein the sheet has a thickness less than about 3 mm.

72. A method as defined in claim 70, wherein the sheet has a thickness less than about 1 mm.

73. A method as defined in claim 70, wherein the sheet comprises a film having a thickness less than about 0.1 mm.

74. A method as defined in claim 70, wherein the sheet has a density greater than about 1 g/cm^3.

75. A method as defined in claim 70, wherein the inorganic mineral filler has a particle packing density in a range from about 0.65 to about 0.90.

* * * * *